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Andrew V. Smith
Sierra Patent Group, Ltd.
P.O. Box 6149
Stateline, NV 89449

EXAMINER

NGUYEN, TUAN N

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/838,715

Applicant(s)

BRAGIN ET AL.

Examiner

Tuan N Nguyen

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-- The MAILING DATE of this communication appears on the front cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-19,21-30 and 32-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-19,21-30 and 32-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____


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DETAILED ACTION

Drawings

1. Acknowledge the formal drawings were received on March 25, 2003. Drawings were approved by Draftman.

Response to Amendment

2. In respond to applicant's amendment filed April 3, 2003, claims 8, 20, and 31 have been canceled. Claims 1, 3, 9, 16, 18, 21, 25, 27, 37, 38, 39, 40 and 41 have been amended. Claims 50-60 have been added.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-60 are rejected under 35 U.S.C 112, second paragraph, as being indefinite, vague, and confusing for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **for example**.

5. Claim 1 recites "a discharge circuit for pulsed gas laser system, comprising: *a pair of electrodes; a capacitance and a load coupled to a first electrode of said pair of electrodes, said capacitance configured to store charge...*" It is not clear how the capacitance and the load connect to the electrode (capacitance C & resistance R in parallel, or "C & R" or "R & C" in series "before/after" – which can lead to different configuration) . There is insufficient structure and relationship such as the lack of (pulse generator, type of capacitance in relation with the

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Ground...) to conform *a discharge circuit for pulsed gas laser system*, which renders the claims vague and indefinite. Claims 2-7, 9-15 are rejected base on the same reason.

Claim 16 recites “A discharge circuit, comprising: a pair of discharge electrode,...; *a peaking capacitor and a resistor coupled to said pair of discharge electrode,...; and a ground terminal coupled to said peak capacitor and a second electrode of said pair of discharge electrodes; wherein said pair of discharge electrodes, said peak capacitor and said resistor form an electrical loop*”. Similar to claim 1, it is also unclear how the resistor couple (series, parallel) in relation with the peaking capacitor. Further more, there is insufficient structure and relationship, which renders the claims vague and indefinite. Claims 17-19 are rejected base on the same reason.

Claim 21 recites a “a discharge circuit for use in a laser system, comprising: *a pair of electrodes...; a first peak capacitance coupled to said electrodes...; a second peaking capacitance different from first peaking capacitance and a resistor coupled to one of said pair of electrodes...*; and a ground terminal *coupled to said first and second peaking capacitor; wherein said pair of discharge electrodes, said first and second peak capacitors and said resistor form an electrical loop* . ” Similar to claims 1 and 16, it is also unclear how the resistor couple (series, parallel) in relation with the peaking capacitor. In addition, by coupled 2nd *peaking capacitance and a resistor to one of said pair of electrodes* can lead to confusion – depends on which electrode the capacitor and resistor connected to, a different configuration when connect with the ground and form an electrical loop. There is insufficient structure and relationship, which renders the claims vague and indefinite. Claims 22-24 are rejected base on the same reason.

Claims 25, 37, and 38 recites a method similar to claims 1, 16, and 21 relate to the circuit device. The relationships between the elements are unclear and there is no structure and insufficient relationship, which renders the claims vague and indefinite. Claims 26-30 and 32-36 are rejected base on the same reason.

Claim 39 recites “an excimer or molecular fluorine laser, comprising: a discharge chamber including a pair of main discharge electrode; *a pulsed discharge circuit coupled to the pair of main discharge electrodes*; wherein the pulse discharge circuit comprises: a main storage capacitor coupled to a pulse compression circuit; *a set of peak capacitors coupled to the pulse compression circuit and the main discharge electrodes, ...; a resistor component coupled to the set of peaking capacitors and the discharge electrodes...*” It is not clear how these elements coupled to one another (similar to 1, 16, 21 – parallel/ series). There is insufficient structure and relationship between the elements (no source, no ground...) to conform an excimer or molecular fluorine laser, which renders the claims vague and indefinite. Claims 40-45 are rejected base on the same reason.

Claim 46 recites a method similar to claim 39. There is insufficient structure and relationship between the elements to conform an excimer or molecular fluorine laser, which renders the claims vague and indefinite. Claims 47-51 are rejected base on the same reason.

Claim 52 recites a pulsed gas laser system, comprising: “ a laser tube including a first electrode and a second electrode and laser gas; and *a capacitance and a load coupled to the first electrode*, wherein the capacitance is coupled to receive a charge from a pulse compression

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circuit, and to discharge the charge through the first and the second electrode, and wherein the load operates to dissipate streamers generated by a glow discharge of the laser tube, wherein the capacitance and the load are located out of the laser tube.” (Similar to 1, 16, 21 – parallel/series). There is insufficient structure and relationship between the elements to conform a pulsed gas laser system. Claims 53-60 are rejected base on the same reason.

Claim Rejections - 35 USC § 102

6. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 16, 21, 25, 37, 38, 46, and 52 are rejected under 35 U.S.C. 102(b) as being unpatentable over Sato et al. (US 5181217). Sato et al. ('217) discloses a laser oscillator circuit for a pulsed gas laser (ABSTRACT) and shows in figures (Figs 1, 8, 10, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 24, 25, 27, 28, 30) where there is a gas discharge between said pair of electrode (ex: F1: 3,4) having a capacitance for storing charge and a load or resistor configured to dissipate energy as a result of a discharge in the gas discharge area - coupled to a first electrode (ex: F1: 11, 13, 6; F 17: 35, 36 ; F 27: 6, 9, 14, 15). Also, the figures show a ground terminal coupled to peaking capacitor and a second electrode of said pair of discharge electrode, and first and second peaking capacitors and resistor form an electrical loop (Figs 1, 8, 10, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 24, 25, 27, 28, 30). It is inherent that the capacitance and the load located outside of the tube, since the laser tube is including a first and second electrodes and laser gas – if the components are within the same chamber they will be quickly damage/destroy when the

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gas pulse discharge. Since claims 25, 37, and 38 recite the same or identical elements/limitations it is inherent to use Sato et al. (US 5181217) to recite the method of providing a discharge circuit for a pulsed gas laser system, product by process.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

9. Claims 1-60 are rejected under 35 U.S.C. 102(b) as being unpatentable over Myers et al. (US 6128323) in view of Sato et al. (US 5181217).

With respect to claims 1-4, 10, 15, 16, 21, 25-28, 36, 37, 38, and 52, 54 Sato et al. '217 discloses the above, and Myers et al. (US 6128323) shows in figures 6, 10, a narrow-band high rep rate excimer laser, with a pair of electrodes (F 8b: 83,84), with a peaking capacitance coupled to first electrode of said pair electrode configured to store charge (F 8b: 82, Cp), and a

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load coupled between first electrode and said capacitance (F 8b: diode, resistor, Lp) and ground. Since claims 25, 37, and 38 recite the same or identical elements/limitations it is inherent to use Myers et al. (US 6128323) to recite the method of manufacturing optical pickup apparatus, product by process. AND/OR - It would have been obvious to one of ordinary skill in the art to provide Myers '323 the element as taught or suggested by Sato et al. ('217) to have a laser oscillator circuit for a pulsed gas laser having capacitor configured to store charge and resistor or load for regulating gas discharge circuit.

With respect to claims 5, 6, 7, 17, 22, 29, 30, 53, 58, 59, and 60 Myers '323 shows in figure 8a (LASER CHAMBER: gas circulation fan) shows a cooling unit cooling the laser chamber or the load comprising the resistor, capacitor and electrodes and an encapsulated volume with circulating oil (Col 3: 20-25, Col 15: 10-15). Rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. Mere duplication of the essential parts involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

With respect to claims 8, 9, 19, 24, 31, 32 Myers '323 shows in figures 3 and 6A shows gas discharge area between the pair of electrode (F 3: 6a, 6b, 56; F 6: 83, 84, 56a), the gas discharge area is configured to provide ionization of a laser gas during charging of the capacitance (Col 13: 40-50; F 6: 56a), and the gas discharge area includes high pressure laser gas come from the blower (F 6: 10a).

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With respect to claims 11, 12, 20, 33, 34 Myers '323 shows in figure 8B (LASER CHAMBER) shows pair of electrodes, capacitance and load form an electric loop. In addition the load includes an active load (Diode, Resistor, Lp).

With respect to claims 13, 14, 18, 23, 34, 35 Myers '323 shows in figures 8A, 8B, 8C show in (POWER SUPPLY, COMMUTATOR sections) a power generator provide power to and charging the peaking capacitance and the power generator includes a high voltage pulsed power generator (F 16: #20, 521)(Col 13: 40-50, Col 14: 15-40).

With respect to claim 39, Myers '323 discloses a discharge chamber filled with gas mixture including halogen component (F 16: #514); a pulse discharge circuit comprising: (a) main storage capacitor (F 8a: #32, #82, COMMUTATOR, COMPRESSION HEAD), (b) a pulsed compression circuit (F8a: COMPRESSION HEAD; F 8b: #60), (c) a set of peaking capacitor between pulse compression circuit and main discharge electrodes (F8b: #62, #82 - Cp), (d) a resistive component coupled between the set of peaking capacitors and discharge electrodes (F8b: Laser Chamber, B2-2); a plurality of electrodes (F3: 6a, 6b, 56) including a pair of main discharge electrodes (F8a: 83,84) an at least one preionization electrode (F6a: 56a) energizing gas mixture. Since claim 46 recites the same or identical elements/limitations it is inherent to use Myers et al. (US 6128323) to recite the method for providing an electrical pulse to a discharge electrodes of an excimer, product by process.

With respect to claims 40-43, 47 Myers '323 shows a second set of peaking capacitors between the pulse compression circuit and main discharge electrodes (F 8b: #62, Cp-1), the electrical connection between the first set of peaking capacitors and the discharge electrodes has

a different inductance than a second electrical connection between the second set of peaking capacitor and the discharge electrodes (F 8b: #60, #80), where resistive component includes a resistor and variable inductor (F 8b: B2-2, Laser chamber, Lp-1).

With respect to claims 44, 45, 48, 49, 50, 51 Myers '323 figure 8b shows a resistive component is coupled in series between the set of peaking capacitors and the discharge electrodes (F 8b: #81, 82, 83, 84), and a resistive component coupled in parallel with the set of peaking capacitor (F8b: B2-2, 82). Sato et al. '217 shows in (Figs 1, 8, 10, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 24, 25, 27, 28, 30) show capacitance and load are in series and parallel.

With respect to claims 55, 56, 57 Myers '323 (figure 8b: 80-84) shows that the load positioned in the pulsed power module and having resistor value comparable to wave impedance or an active impedance at maximum discharge current phase. Discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Citation of Pertinent References

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is cited primarily to show the product of the instant invention.

Bouvwman et al. (US 6069 454) shows (F1: Rstab) the stabilizer resistor circuit for a discharge lamp.

Nakatami (US 5267253) shows in (F 2, 4a-4c, 10, 12, 13) capacitor and load in series of parallel.

Zucker et al. (US 5394415) shows in (F 1) a stabilizing circuit having capacitor and load/resistor in series.

Wakata et al. (US005305338A), shows in (F 22,23, 28, 80, 82-90) a stabilizing circuit having capacitor and load/resistor in series or parallel loops.

Muller-Horsche (US005247531A), Nakatani (US005267253A), Zucker et al. (US005394415A), Bragin et al. (US006466599B1), Wakata et al. (US005305338A), Brewer et al. (US005968080A), Oliver et al. (US006442181B1), Partlo et al. (US005914974A), Myers et al. (US006128323A), Hongu et al. (US 5777867), Partlo et al. (US005936988A), Ohmi et al. (US006282221B1), Matsunaga et al. (US006400741B1), Nakatani et al. (US005305339A), Rothe (US 4975921), Muller-Horsche (US005247531A), Klopotek (US 4797888), Bernitz et al. (US005343125A), Robbins (US 4201949), Fahlen et al. (US 445194), Taylor et al. (US 5309462), Eden et al. (US 4606034), Minamitani et al. (US 5708676), Basting et al. (US006005880A), Yoshida et al. (US006389049B2), Chung et al. (US005147995A) disclose excimer laser oscillation apparatus having a pair of electrodes with capacitance and/or a load to the electrode to store charge, where a load configure to dissipate energy as result of discharge in the gas discharge area.

Response to Argument

11. Applicant's arguments filed on April 1, 2003 have been fully considered but they are not persuasive and mood in view of new ground of rejection.

The load or resistor “configured to dissipate energy transmitted through it as a result of a discharge in the gas discharge area” is nothing more than a resistor use to control amount of current or power into the discharge circuit. As the discharge circuit fire, an amount of current will travel through the resistor and/or load – which dissipate energy as a result of a discharge in the gas discharge area. (Ex: current pass through resistor will generate a potential and heat)

Conclusion

12. The prior art made of record and relied upon is considered pertinent to applicant's discloses.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (703) 605-0756. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 746-8592 for regular communications and (703) 746-8592 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tuan N. Nguyen


May 16, 2003



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